REMARKS

Applicant submits this Amendment in reply to the non-final Office Action mailed on February 7, 2007 ("the Office Action"). Applicant again thanks the Examiner for discussing the claim objections and claim rejections with Applicant's representatives on May 3, 2007 and on June 5, 2007. By this amendment, Applicant has amended claims 1-38. No new matter has been added. Accordingly, claims 1-38 remain pending.

I. Summary of Examiner Interview

On May 3, 2007, a personal interview was conducted between Examiner Park, Supervisory Examiner Gurley, and Applicant's representatives Elizabeth Burke and Michael Reilly. Applicant thanks the Examiners for the courtesies extended during the interview. The substance of the interview is accurately described on the Interview Summary form, which was personally delivered to Applicant's representatives. During the interview, the claim objectives and rejections were discussed. It became clear during the interview that, although uncited in the Examiner's rejection under 35 U.S.C. § 103(a) of claim 1, the Examiner had also relied on Computer Networks: A Systems Approach Section 4.2.2 by Larry L. Peterson et al., 2nd edition, pages 284-288, published by Morgan Kaufmann Publishers, on October 1999 (hereinafter "Computer Networks"), in the rejection of claim 1. Applicant's representatives requested that a new non-final Office Action be provided with the appropriate reference citations, however a new Office Action was not issued. Applicant's representatives agreed to reconsider the rejection of claim 1 in view of the additional reference Computer Networks.

After the personal interview, Examiner Park indicated in a phone call that the proposed amendments presented in an unofficial proposed amendment (for interview purposes only) satisfactorily addresses the claim objections. The Examiner said he would

reconsider the claim rejections under 35 U.S.C. § 103(a) upon the receipt of this response. The Examiner further suggested changes that would overcome the claim rejections under 35 U.S.C. § 101. Also, the Examiner stated that he will respond to this response by a second non-final Office Action. The below amendments and remarks are consistent with the interview discussions.

II. Objections to the drawings

On page 2 of the Office Action, the Examiner objects to Figures 1-4, 7, and 14 based on certain informalities. Applicant appreciates the Examiner's thorough review of the drawings, and has amended the drawings as discussed above to address the Examiner's concerns.

III. Claim Objections

On page 3 of the Office Action, the Examiner objects to claims 1-5, 10-17, 25-38 for various minor informalities. As discussed in the interview summary, Applicant has addressed all of Examiner's objections by the foregoing amendments, with the following exceptions.

The Examiner's objections to claim 2 (line 4), claim 3 (line 4), claim 13 (line 23), claim 27 (line 4), and claim 28 (line 4) were discussed in the interview. The Examiner's objections suggest that the language should be changed based on the context of previous claims. Applicant respectfully submits that the claim language is appropriate as written, and requests that the Examiner withdraw the objections to these claims.

The Examiner's objections to claim 3 (lines 1-2), claim 11 (lines 1-2), claim 12 (lines 1-2), claim 17 (line 3), claim 28 (line 2), claim 36 (line 2), and claim 37 (line 2) were also discussed in the interview. The Examiner's objections ask that various

occurrences of "a[n] element" be changed to "the element" in the objected-to claims based on an introduction of an element of the same name in a respective preceding claim. Applicant points out, however, that because the objected-to claims do not depend from the respective preceding claims, no antecedent basis is established for the element, and thus the objections are improper. Therefore, Applicant requests that the Examiner withdraw the objections to these claims.

IV. Claim Rejections Under 35 U.S.C. § 101

On pages 8-9 of the Office Action, the Examiner rejects claims 1-3, 6-15, 17-24, and 26-38 under U.S.C. § 101. The Examiner declares that each of these claims "can be just an abstract idea" and thus are "directed to non-statutory subject matter." The Examiner suggested amendments to overcome the claim rejections under 35 U.S.C. § 101 during the personal interview and phone call. Applicant thanks the Examiner for his suggestions.

With regard to claim 1, the Examiner suggested that the claim rejection under 35 U.S.C. § 101 may be overcome by clarifying what is updated in the step of updating. While Applicant respectfully disagrees with the Examiner's rejection and refers to the steps of forwarding a packet and updating the machines as being "real-world" and thus statutory, claim 1 has been amended to recite, "updating a computer-readable storage device of the machines…" Accordingly, claim 1 recites a method that provides a useful, tangible, and concrete result, and is allowable for at least this reason. Additionally, rejected claims 2, 3, and 6-12 depend from claim 1 and are allowable for at least this reason as well as for their additional features.

With regard to claim 13, Applicant draws attention to the fact that a system is claimed, and that the system comprises a first machine, a first gateway included in the first machine, and a network table included in the first machine. Each of these is a real-world component, and claim 13 further presents steps included in the operation of the first gateway, including updating, receiving, forward, and sending. Each of these points is "real-world" and thus statutory. Applicant thanks the Examiner for agreeing to reconsider the rejection of claim 13 under U.S.C. § 101 in light of these reasons. Applicant submits that claim 13 is allowable for at least these reasons. Additionally, rejected claims 14, 15, and 17-24 depend from claim 13 and are allowable for at least this reason as well as for their additional features.

With regard to claim 26, the Examiner suggested that the claim rejection under 35 U.S.C. § 101 may be overcome by changing the language "computer-readable medium" to a "computer-readable storage device." Applicant respectfully disagrees with the Examiner's rejection and refers to the steps of forwarding a packet and updating the machines as being "real-world" and thus statutory. Further, Applicant sets forth that claim 26 is statutory in light of MPEP § 2106.01 which states "[w]hen functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized." However, claim 26 has been amended to recite, "A computer-readable storage device…" Accordingly, claim 26 recites a device that provides a useful, tangible, and concrete result, and is allowable for at least this reason. Additionally,

rejected claims 27-37 depend from claim 26 and are allowable for at least this reason as well as their additional features.

With regard to claim 38, Applicant respectfully disagrees with the Examiner's rejection. However, claim 38 has been amended to recite, "forwarding a packet to a computer-readable storage device of a second machine." Accordingly, claim 38 recites a method that provides a useful, tangible, and concrete result, and is allowable for at least this reason.

V. Claim Rejections Under 35 U.S.C. § 103(a)

On pages 9-15 of the Office Action, the Examiner rejects claims 1-36 under U.S.C. § 103(a). Claims 1-9, 11, 13, 14, 16-19, 21-34, and 36 stand rejected as unpatentable over IEEE Conference Proceeding ("Ad-hoc on-demand distance vector routing" by Perkins et al., published in Mobile Computing Systems and Applications, 1999 Proceedings, WMCSA '99 Second IEEE Workshop on 25-26 February 1999, Pages 90-100) (hereinafter "IEEE") in view of U.S. Patent Application Publication No. 2003/0028811 to Walker et al. (hereinafter "Walker"). Claims 10, 12, 15, 20, and 35 stand rejected under IEEE and Walker in view of Computer Networks.

With regard to claim 1, the Office Action alleges that IEEE teaches the steps of updating the machines and determining a second set of the plurality of machines. Applicant respectfully traverses the Examiner's rejection. In particular, IEEE does not teach at least the following two clauses of claim 1: "updating the machines included in at least one of the first and second sets of the plurality of machines based on at least one of (i) the respective machine changing locations within the environment and (ii) any of the machines included in the first or second sets changing locations within the

environment;" and "determining a second set of the plurality of machines that are in direct communication range of one or more of the machines in the first set."

IEEE teaches away from "updating the machines included in at least one of the first and second sets of the plurality of machines based on at least one of (i) the respective machine changing locations within the environment and (ii) any of the machines included in the first or second sets changing locations within the environment." More specifically, IEEE states in section 2.3, first paragraph, "[w]hen either the destination or some intermediate node moves, a special RREP is sent *to the affected source nodes*" (emphasis added), which, based on IEEE's description of RREP's, would not include the machines included in at least one of the first and second sets of the plurality of machines.

The Examiner also referenced IEEE section 2.4, first paragraph, wherein IEEE states "[i]n the event that a node has not sent any packets to all of its active downstream neighbors within `hello_interval`, it broadcasts to its neighbors a *hello* message (a special unsolicited RREP)..." Applicant respectfully points out that these steps are performed based on a passage of time (i.e. `hello_interval`), and are unconcerned with the locations of any of the respective machine, the machines included in the first set, and the machines included in the second set. For at least these reasons, IEEE does not disclose or suggest "updating the machines included in at least one of the first and second sets of the plurality of machines based on at least one of (i) the respective machine changing locations within the environment and (ii) any of the machines included in the first or second sets changing locations within the environment."

The Examiner's rejections under 35 U.S.C. § 103(a) of claims 13, 25, and 26 are similar to the Examiner's rejection of the above language of claim 1 under 35 U.S.C. § 103(a), and thus similar arguments would apply. Applicant thanks the Examiner for agreeing to reconsider the rejections on this basis.

IEEE also does not teach "determining a second set of the plurality of machines that are in direct communication range of one or more of the machines in the first set." More specifically, IEEE teaches that routers learn of paths to sources and destinations (i.e., the next node in the paths) without concern for what is in direct communication with any of the nodes in the first set. As stated previously, it became clear during the interview with the Examiner that, although uncited in the Examiner's rejection under 35 U.S.C. § 103(a) of claim 1, the Examiner had also relied upon Computer Networks in rejecting claim 1. In particular, a method of Distance Vector Routing described therein was used in the rejection of claim 1, including the step of determining a second set. Based on discussions of the references held during the personal interview, Applicant considered the combination of IEEE and Computer Networks in the rejection of claim 1. After consideration, Applicant believes claim 1 distinguishes over such a combination. While IEEE and Computer Networks both may teach methods of Distance Vector Routing, they are incompatible with each other when combined. More specifically, the method disclosed in Computer Networks includes an exhaustive (i.e., brute force) detection of the distance to each node in a network from a respective node by sending distance vectors from each node in the network back to each respective node over a series of steps (i.e., global dissemination of connectivity information). IEEE, however, states several times that the method disclosed therein <u>minimizes</u> the amount of network

traffic used in determining paths among nodes (i.e., an exhaustive search of nodes through the network is not included in the method of IEEE). One example is included in section 1, third paragraph, wherein IEEE states (with regard to a distance vector algorithm called Destination-Sequenced Distance Vector (DSDV) algorithm):

> DSDV is effective for creating ad-hoc networks for small populations of mobile nodes, but it is a fairly brute force approach because it depends for its correct operation on the periodic advertisement and *global dissemination* of connectivity information. Frequent system-wide broadcasts limit the size of ad-hoc networks that can effectively use DSDV because the control message overhead grows as $O(n^2)$. DSDV also requires each mobile node to maintain a *complete list of routes, one for each destination within the ad-hoc network*...It is, however, possible to design a system whereby routes are created on-demand...With the goals of minimizing broadcasts and transmission latency when new routes are needed, we designed a protocol to *improve upon the performance characteristics of DSDV* in the creation and maintenance of ad-hoc networks.

IEEE, pp. 1-2, emphasis added. Section 2.1 of IEEE describes a path discovery method wherein each node determines only information about the destination and source of a packet, and about the next node *en route* to the destination, and that although the DSDV and the AODV (Ad-hoc distance vector) algorithms both utilize distance vectors, they are distinct algorithms. Similarly, the distance vector routing method of Computer Networks is another algorithm resembling DSDV, not AODV. Thus, a combination of the distance vector routing method of Computer Networks and AODV would be counter-productive to the goals of AODV, and would, in fact, resemble the DSDV algorithm upon which AODV attempts to improve. Claim 13 recites "a network table included in the first gateway that identifies machines that are either directly or indirectly within communication range of the first machine, wherein the network table identifies a first set of the plurality of machines that are within

communication range of the first machine and identifies a second set of the plurality of machines that are within communication range of any of the machines in the first set;" and claim 26 recites "determining a second set of the plurality of machines that are in direct communication range of one or more of the machines in the first set." Thus, although these claims are of different scope, the arguments regarding the rejection of claim 1 above also apply to claims 13 and 26.

With regard to claims 1, 13, 25, and 26, the Office Action references Walker as allegedly teaching "[t]he general concept of applying the ad-hoc in work machines." Even if Walker does teach this, which Applicant does not concede, Walker does not rectify the deficiencies of IEEE discussed above. Similarly, Walker does not remedy the deficiencies of Computer Networks. Therefore, for at least the reasons discussed above, claims 1, 13, 25, and 26 are patentable over the prior art of record.

Accordingly, claims 1, 13, 25, and 26 are allowable for at least these reasons. Additionally, claims 2-12 depend from claim 1, claims 14-24 depend from claim 13, and claims 27-36 depend from claim 26 and are allowable for at least these reasons as well as their additional features.

Applicant traverses the Examiner's rejection under U.S.C. 35 § 103(a) of claims 10, 12, 15, 20, and 35. Claims 10, 12, 15, 20, and 35 depend from one of independent claims 1, 13, and 26 and therefore are allowable for at least the same reasons that claims 1, 13, and 26 are allowable over the prior art. Reconsideration is requested.

V. Conclusion

In view of the foregoing arguments, Applicant requests withdrawal of the Section 101 and Section 103(a) rejections, and allowance of pending claims 1-38.

The Office Action contains characterizations of the claims and the related art with which Applicant does not necessarily agree. Unless expressly noted otherwise, Applicant declines to subscribe to any statement or characterization in the Office Action.

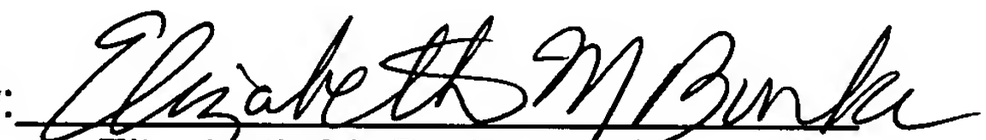
If a telephone interview will expedite issuance of this Application, the Examiner is requested to call Applicant's undersigned representative at (202) 408-4488 to discuss any remaining issues.

Please grant any extensions of time required to enter this Request for Reconsideration and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: June 7, 2007

By: 
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AMENDMENTS TO THE DRAWINGS

The attached drawing Replacement Sheets include changes to Figs. 1-4, 7, and 14. Specifically, as requested by the Examiner, Figs. 1-4, 7, and 14 have been amended to include labeled descriptive text. More specifically, descriptive labeled text has been added to: elements 105, 120, 125, 127, 130, 140, and 150 of Fig. 1; elements 205, 210, 215, 220-1, 220-2. 220-N, 225-1, 225-2, and 225-Y of Fig. 2; elements 310, 315, 320, 325, 330, 335, 340, 345, 350-1, 350-2, 350-T, 360-1, 360-2, and 360-X of Fig. 3; elements 410, 415, 420, 425, 430, 440, 450, 460, and 470 of Fig. 4; element 750 of Fig. 7; and element 1440 of Fig. 14 Further, elements 225-1 of Fig. 2 and 400 of Fig. 4 were amended such that their respective element labels are now underlined.

Attachments: Six (6) Replacement Sheets including Fig. 1-4, 7, and 14.